

Invasive Plants



Bi-pinnately compound leaves of chinaberry trees



Privet in bloom

Invasive plants – Invasive plants are non-native plants that have found their way into the landscape. Invasive plants are often aggressive, out-competing the native plants for nutrients and space. Invasive plants have few if any natural control mechanisms to slow down their progression and many crowd out the beneficial native plants. The primary objective of invasive plant control is to minimize or eliminate these invaders and favor native vegetation.

Invasive non-native organisms are one of the greatest threats to the natural ecosystems of the United States and they are destroying America's natural history and identity. Invasive species cause great economic losses and expenditures each year measured in billions of dollars, for agriculture, forestry, range lands and roadways management (Westbook 1998).

Organisms are considered non-native when they occur artificially in locations beyond their known historical native ranges. Non-native can refer to species brought in from other continents, regions, ecosystems and even other habitats. The most important aspect of an alien plant is how it responds to a new environment. An invasive species is one that displays rapid growth and spread, allowing it to establish over large areas. Invasive species are free from the vast and complex array of natural controls present on their native lands including herbivores, parasites, and diseases.

The term **noxious** is a legal designation used specifically for plant species that have been determined to be major pests of agricultural ecosystems and are subject, by law, to certain restrictions. These restrictions make it illegal to plant, transport or sell plants that are listed as a noxious plant. There are many plants on the Texas noxious plant list including Chinese Tallow tree (*Sapium sebiferum* (L.) Roxb.) and kudzu (*Pueraria Montana* (Lour.) Merr.).

Some known ecological impacts of invasive plants include:

- Reduction of biodiversity
- Loss of and encroachment upon endangered and threatened species
- Loss of habitat for native insects, birds and other wildlife
- Alterations to the frequency and intensity of fires

Disruption of native plant-animal associations such as pollination, seed dispersal and host-plant relationships
Reduce or eliminate host plants for native insects

An additional problem caused by invasive plants is that they reduce the amount of space, water, sunlight and nutrients that were formerly available for native plants. Invasive plants can kill trees and shrubs through girdling and shading by actually covering the native plants with a blanket of leaves and vines.

Invasive plant identification is crucial as early detection can lead to control measures before the plants have an opportunity to spread over a large area becoming a major problem. A commitment must be made in controlling invasive plants as they generally require follow-up treatments to take care of re-sprouting and new plants emerging from previous year's seed fall.

Common Forestry Invasive Plants

Mimosa tree or silktree (*Albizia julibrissin* Durazz.) is a deciduous leguminous tree with alternate "bi-pinnately compound" leaves. The flowers are very showy pom-pom like and bright pink. The fruit is a legume pod that is flat except for the seeds that are initially green but turn brown in the fall. Mimosa trees were widely planted around homes because of their showy flowers and they were also planted for their use in the production of silk.



Mimosa tree in bloom



Seed pods in the fall, note brown color

Recommended Mimosa control procedures:

Large trees. Make stem injections using imazapyr (Arsenal AC*, Chopper, GenII) or triclopyr (Garlon 3A, Pathfinder II) in dilutions as specified on the herbicide label (anytime except March and April). For felled trees, apply these herbicides to stem and stump tops immediately after cutting.

Saplings. Apply triclopyr (Garlon 4) as a 20-percent solution in commercially available basal oil, diesel fuel, or kerosene (2.5 quarts per 3-gallon mix) with a penetrant (check with herbicide distributor) to young bark as a basal spray.

Resprouts and seedlings. Thoroughly wet all leaves with one of the following herbicides in water with a surfactant: July to October—triclopyr (Garlon 3A, Garlon 4, Pathfinder II) or glyphosate herbicide as a 2-percent solution (8 ounces per 3-gallon mix) July to September—Transline† as a 0.2- to 0.4-percent solution (1 to 2 ounces per 3-gallon mix)

* Nontarget plants may be killed or injured by root uptake.

† Transline controls a narrow spectrum of plant species.

Chinaberry trees (*Melia azedarach* L.) are a deciduous tree with alternately whorled “bi-pinnately” compound leaves. The leaves turn yellow in the fall. The fruit is a berrylike drupe that is **poisonous** to humans and livestock. Chinaberry trees have been widely planted because of their fall color and they are commonly found along fence rows and under power lines as birds spread their seeds (Miller 2003).



Chinaberry in fall color (photo by James Miller)



Closer view of the chinaberry leaves, one leaf in the circle

Recommended chinaberry control procedures:

Trees. Make stem injections using imazapyr (Arsenal AC*, Chopper, GenII), triclopyr (Pathfinder II, or Garlon 3A) in dilutions and cut spacings specified on the herbicide label (anytime except March and April). For felled trees, apply these herbicides to stem and stump tops immediately after cutting.

Saplings. Apply triclopyr (Garlon 4) as a 20-percent solution in commercially available basal oil, diesel fuel, or kerosene (2.5 quarts per 3-gallon mix) with a penetrant (check with herbicide distributor) to young bark as a basal spray.

Sprouts and seedlings. Thoroughly wet all leaves with one of the following herbicides in water with a surfactant (July to October): triclopyr (Pathfinder II, Garlon 3A or Garlon 4) as a 2-percent solution (8 ounces per 3-gallon mix); imazapyr (Arsenal AC*, Chopper, GenII) as a 1-percent solution (4 ounces per 3-gallon mix).

* Nontarget plants may be killed or injured by root uptake.

Chinese privet (*Ligustrum sinense* Lour.) is a semi-evergreen thicket forming shrub typically growing with multiple trunks and can reach heights of 30 feet. Privet is common along fence rows and in the understory of pine and hardwood forests. Privet can thrive in these understory settings since it is shade tolerant. It has rapid growth, often growing in dense clusters that shade out native vegetation. The leaves of privet are opposite along the branches. Privet has showy, fragrant white flowers that appear between April and June. The flowers grow on the end of branches in clusters. The fruit of privet is called a drupe which is pale green in summer and ripens to a dark purple in fall. Privet is moved around by birds and animals that feed on the fruit and spread it as they travel the area. It also can spread by root sprouts. Once privet is established in an area, it is difficult to remove (Miller 2003).



Privet thicket in bloom



Privet flowers forming drupes



Mature privet drupes in fall

Recommended privet control procedures:

Thoroughly wet all leaves with one of the following herbicides in water with a surfactant (August to December): a glyphosate herbicide as a 3-percent solution (12 ounces per 3-gallon mix) or imazapyr (Arsenal AC* as a 1-percent solution (4 ounces per 3-gallon mix), Chopper, GenII).

For stems too tall for foliar sprays, apply triclopyr (Garlon 4) as a 20-percent solution in commercially available basal oil, diesel fuel, or kerosene (2.5 quarts per 3-gallon mix) with a penetrant (check with herbicide distributor) to young bark as a basal spray.

Or, cut large stems and immediately treat the stumps with imazapyr (Arsenal AC*, Chopper, GenII) or hexazinone (Velpar L*) as a 10-percent solution in water (1 quart per 3-gallon mix) with a surfactant.

When safety to surrounding vegetation is desired, immediately treat stumps and cut stems with triclopyr or a glyphosate herbicide as a 20-percent solution in water (2.5 quarts per 3-gallon mix) with a surfactant.

*May cause damage to surrounding vegetation.

Chinese Tallow Tree (*Sapium sebiferum* L.) is a deciduous tree that displays rapid growth. Tallow tree was introduced to the USA in Charleston, South Carolina in the late 1700's. It was brought over initially for oil production and used in making candles. It has since spread to every coastal state from North Carolina to Texas, and inland to Arkansas. This tree caught on as an ornamental tree because of its rapid growth and fall color.



Chinese tallow tree turning reddish in color in fall Seeds and reddish fall color of Chinese tallow tree.

Chinese tallow tree can be identified by its simple, alternate leaves with broadly rounded bases that taper to a slender point. Leaf stalks are 1-2 inches long. This tree has milky sap and can attain heights of 30 feet. Small yellow flowers that are borne on spikes to 8 inches long occur in spring. The fruit is a 0.5 inch wide, 3-lobed capsule that turns brown at maturity and spits open to reveal 3 white seeds. The seeds, which often remain attached to the tree through the winter, resemble popcorn, suggesting the other common name of popcorn tree (Miller 2003).

Chinese tallow tree can invade stream banks, riverbanks, and wet areas like ditches as well as upland sites. It can even thrive on saline soils. Chinese tallow tree is shade tolerant, flood tolerant, and allelopathic. Chinese tallow tree increased widely through ornamental plantings and it also spreads by bird- and water-dispersed seeds and colonizing by prolific surface root sprouts.

Chinese tallow tree is a difficult tree to remove once it becomes established on your property. The present tree can be readily killed but the abundant seeds can quickly re-establish the area. Some speculate that the seeds remain viable for many years.

Recommended tallow tree control procedures:

Large trees. Make stem injections using imazapyr (Arsenal AC®, Chopper®, GenII), triclopyr (Garlon 3A, Ortho Brush-B-Gone or Pathfinder II) herbicide in dilutions and cut spacings specified on the herbicide label (anytime except March and April).

For felled trees, apply the herbicides to stem and stump tops immediately after cutting. Apply at least a 10-percent solution for triclopyr herbicides (Garlon 3A, Ortho Brush-B-Gone, and Enforcer Brush Killer) for effective treatment of cut stumps. For treatment of extensive infestations in forest situations, apply a hexazinone herbicide (Velpar L*) to the soil surface within 3 feet of the stem (one squirt of spot gun per 1-inch stem diameter) or in a grid pattern at spacings specified on the herbicide label.

Saplings. Apply triclopyr (Garlon 4) as a 20-percent solution in commercially available basal oil, diesel fuel, or kerosene (2.5 quarts per 3-gallon mix) with a penetrant (check with herbicide distributor) to young bark as a basal spray.

Seedlings and saplings. Thoroughly wet all leaves with one of the following herbicides in water with a surfactant (July to October): imazapyr (Arsenal AC* as a 1-percent solution (4 ounces per 3-gallon mix, Chopper, GenII), Krenite S as a 30-percent solution (3 quarts per 3-gallon mix), or triclopyr (Garlon 3A, Garlon 4 as a 2-percent solution (8 ounces per 3-gallon mix).

* Nontarget plants may be killed or injured by root uptake.

Cogongrass (Imperata cylindrical (L.) Beauv.) is considered to be one of the 10 worst weeds in the world. It is native to the warmer regions of the world. Cogongrass was accidentally introduced into Alabama about 1911 as seed in packing materials from Japan (Dickens 1974). Purposeful introductions primarily for forage production soon followed in Alabama, Mississippi and Florida (Bryson and Carter 1993). Cogongrass was also used as potential forage and for soil stabilization purposes however, people eventually realized that cogongrass was of little economic (forage) benefit and that it was becoming a serious pest.



Cogongrass growing in a pine plantation.



Cogongrass in bloom.

Cogongrass is an aggressive, colony-forming perennial grass. Leaf blades are narrow and erect; tips are sharp and pointed, have short fine hairs at the base, are flat and smooth above with a whitish mid-vein noticeably off-center, and the blade margins have very small needle-like foldable projections. The flowers are white-silky and plume-like, cylindrical, paired on unequal stalks, with each spikelet surrounded by long white hairs. Cogongrass often attains a height of 3 to 5 feet late in a growing season (Miller 2003). Cogongrass spreads primarily from rhizomes, rhizome fragments, and windborne seeds. Even a small rhizome fragment can develop into a fully functional plant. Cogongrass is highly flammable when mature and actually burns hotter than native grasses, but the roots and rhizomes are remarkably resistant to fire (Bryson and Carter 1993).



Cogongrass has an whitish offset mid-vein and serrated edges.

Recommended cogongrass control measures:

The most effective method of managing cogongrass is with herbicides. Two herbicides, glyphosate (Roundup®Pro, Accord®SRT II) and imazapyr (Arsenal AC®, Chopper®, GenII) may be used alone or in

combination to reduce cogongrass infestations (Miller 2003, Faircloth et. al 2005). To treat cogongrass, thoroughly wet the leaves in the fall with glyphosate (2% solution, 8 oz. of product per 3 gallon mix) or imazapyr (1% solution, 4 oz. product per 3 gallon mix), or a combination of these herbicides. Always include a surfactant to improve herbicide absorption by the cogongrass foliage. When using imazapyr or imazapyr and glyphosate combinations the use of 1 to 3 percent methylated seed oil (MSO) improves herbicide uptake by plants which is important in the management of difficult grasses, such as cogongrass.

Best results with standard glyphosate and imazapyr applications are obtained with herbicide treatment in September or October. Older infestations will be more difficult to manipulate due to dense leave cover, and a second application may be necessary in April or May the following year before the plant produces flowers.

In summary, imazapyr and glyphosate herbicides provide effective management strategies for manipulating cogongrass. Don't let this invasive plant go untreated and continue spreading on your property. Cogongrass infestations cause loss of productive forest areas, hinder forest activities and severely degrade wildlife habitat by replacing desirable native plants.

Important Considerations

- If you are spraying under pines – glyphosate or imazapyr or a combination of these herbicides can be used.
- If you are spraying over the top of little pines – don't use glyphosate products.
- If you are spraying around hardwood trees that you want to keep – don't use imazapyr products.

Japanese climbing fern (*Lygodium japonicum* (Thunb.) SW.) is a non-native, invasive vine which from its introduction around 1900 has become established through the Southeastern Coastal Plain from the Carolinas to Texas and Arkansas. It is a native species of Eastern Asia from Japan and west to the Himalayas. Japanese climbing fern has climbing, twining fronds of indeterminate growth to 90 feet long and the main rachis is wiry, stem-like. Japanese climbing fern has feathery, light green fronds. Frost will induce above-ground die-back of Japanese climbing fern but does not necessarily kill the below-ground portion of the plant (Minogue et al. 2009).



Recommended Control Practices:

Thoroughly wet all leaves with one of the following herbicides in water with a surfactant (July to October): Imazapyr (Arsenal AC* as a 1 percent solution -4 ounces per 3 gallon mix, Chopper, GenII), triclopyr,

(Garlon 3A, Garlon 4, PathfinderII) or a glyphosate herbicide as a 2 percent solution (8 ounces per 3 gallon mix), Escort at 1 to 2 ounces per acre in water (0.3 to 0.6 dry ounces per 3 gallon mix).

There are many other invasive plants that warrant our consideration such as Kudzu, Callery Pear, multi-flora rose, Tropical Soda Apple and many others. If invasive plants mentioned here are recognized in the field, the owner should take action to control their spread or eliminate them if possible. Invasive plants are very difficult to eradicate due to their seed production, ability to re-sprout and few natural barriers. If you observe a suspicious plant, try to identify the plant or have someone knowledgeable examine the plant. Don't wait to take action because these plants spread quickly. Cogongrass has been found to expand its coverage by over 300 percent per year.

Additional information including treatment recommendations regarding invasive plants can be found in a management guide for invasive plants in Southeastern forests (Miller 2010). The recommendations listed in this document came from Miller's book.

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Trade Names

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